

an optical detection system that receives the signal beam and in response generates a light-induced electrical signal; and  
an analyzer that analyzes the light-induced electrical signal to measure the property of the structure.

35. (Amended) An apparatus for measuring a property of a structure, comprising:

a passively Q-switched microchip laser that generates an optical pulse;

a photodiode that receives a portion of the optical pulse to generate a trigger pulse;

a first optical system that receives the optical pulse and separates it into at least two excitation pulses;

a second optical system that receives at least two optical pulses and spatially and temporally overlaps them on or in the structure to form an excitation pattern that launches an acoustic wave, an electronic response, or a thermal response that modulates at least a portion of the structure;

a light source that produces a probe beam that reflects or diffracts off the portion to generate a signal beam;

an optical detection system that receives the signal beam and in response generates a light-induced electrical signal;

a data-acquisition system that receives the light-induced electrical signal and the trigger pulse and, in response, generates a data signal; and

an analyzer that analyzes the data signal to measure the property of the structure.

45. (Amended) A method for measuring a property of a structure, comprising the steps of:

generating an optical excitation pulse with a diode-pumped microchip laser;

diffracting the optical pulses with a diffracting element to generate at least two excitation pulses;

spatially and temporally overlapping the excitation pulses on or in the structure to form an excitation pattern that launches an acoustic wave, an electronic response, or a thermal response that modulates at least a portion of the structure;

reflecting a probe beam off the portion to generate a signal beam;

detecting the signal beam to generate a light-induced electrical signal; and

analyzing the light-induced electrical signal to measure the property of the structure.

46. (Amended) A method for measuring a property of a structure, comprising:

generating an optical pulse with a passively Q-switched microchip laser;

generating a trigger pulse by detecting a portion of the optical pulse;

separating the optical pulse into at least two excitation pulses;

spatially and temporally overlapping the optical pulses on or in the structure to form an excitation pattern that

launches an acoustic wave, an electronic response, or a thermal response that modulates at least a portion of the structure;

reflecting or diffracting a probe pulse off the portion to generate a signal beam;

detecting the signal beam to generate a light-induced electrical signal;

processing the light-induced electrical and the trigger pulse with a data-acquisition system to generate a signal; and

analyzing the signal to measure the property of the structure.

#### REMARKS

This application has been carefully reviewed in light of the Office Action dated October 7, 1999. Claims 1-46 remain pending in this Application. Claims 1, 35, 45 and 46, the independent claims, have been amended. Favorable reconsideration is respectfully requested.

In the Office Action, Claims 1-13, 15-19, 21-34 and 45 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-8 and 25 of U.S. Patent 5,734,470 (Rogers-I). Claims 1-13, 15-19, 21, 23-34 and 45 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent 5,546,881 (Rogers-II). Claims 14, 20 and 22 were rejected under 35 U.S.C. § 103 as being unpatentable over Rogers-II. Claims 35-44 and 46 were rejected as being unpatentable over Rogers-II in view Nelson et al., Journal of Applied Physics 2/1982.